UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,973	08/25/2005	Jere Kolehmainen	034382-001	3182

21839 7590 04/06/2007
BUCHANAN, INGERSOLL & ROONEY PC
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

EXAMINER	
JACOBS, DUSTIN THOMAS	
ART UNIT	PAPER NUMBER
2834	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/525,973	KOLEHMAINEN ET AL.	
	Examiner	Art Unit	
	Dustin Jacobs	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 February 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/25/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. Finland 2002-1524, filed on 08/26/2002.

Information Disclosure Statement

The information disclosure statements (IDS) submitted on 02/28/2005 and 08/25/2005 was filed before and on, respectively, the mailing date of the application 10/525,973 on 08/25/2005. The submissions are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Objections

Claims 1, and 4-8 are objected to because of the following informalities:

In re claim 1, "pernalent" is unclear and it is to be understood by the examiner as "permanent". Also "rotor palc" is unclear and it is to be understood by the examiner as "rotor pack". The number "5" is understood by the examiner as a typo and should be deleted. "centre" in lines 5 and 9 is misspelled and should be corrected to "center".

In re claim 4, "centre" in line 3 is misspelled and should be corrected to "center".

In re claims 5 and 6, "centre" in line 2 is misspelled and should be corrected to "center".

In re claims 7 and 8, "centre" in line 3 is misspelled and should be corrected to "center".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US Patent No. 6,396,374) in view of Wakui et al. (US Publication No. 2002/0171309 A1).

Asano et al. '374 discloses:

- A rotor (10, Fig. 1) for a permanent-magnet electrical machine (col. 1, line 12), comprising an axle (14, Fig. 1) mounted to the machine body with bearings (col. 3, lines 44-48), a rotor pack (11, Fig. 1) made of iron (col. 4, lines 52-53) and arranged around said axle, as well as permanent magnets (42a and 42b, Fig. 8) adapted to the rotor pack, used for forming magnet poles (col. 5, line 1).
- The magnetic flux density is at its maximum at the center of the pole and decreased towards the edges of the pole (col. 6, lines 50-55).

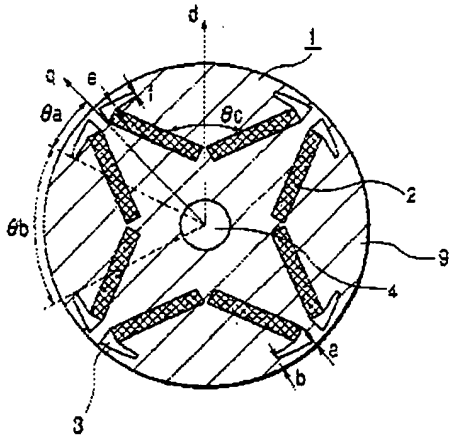
Asano et al. '374 does not disclose:

- Slots in the rotor poles on the route of the magnetic flux so that at least one slot extends from both edges of the pole essentially towards its center and that the slot is closer to the outer circumference of the rotor than the central axle of the rotor.

Wakui et al. '309 discloses:

- A rotor structure (1, Fig. 6) with slots (3, Fig. 6) in the rotor poles (2, Fig. 6) on the route of the magnetic flux (par. 53, lines 1-5) so that at least one slot (3, Fig. 6) extends from both edges of the pole (2, Fig. 6) essentially towards its center and that said slot is closer to the outer circumference of the rotor (1, Fig. 6) than the central axle (4, Fig. 6) of said rotor.

FIG. 6



The advantage of the rotor structure of Wakui et al. '309 is provide easy production, low production cost, and a greater surface area of the permanent magnet (par. 52, lines 4-7).

Wakui et al. '309 teaches that it is known to provide a rotor structure (1, Fig. 6) with slots (3, Fig. 6) in the rotor poles (2, Fig. 6) on the route of the magnetic flux (par. 53, lines 1-5) so that at least one slot (3, Fig. 6) extends from both edges of the pole (2, Fig. 6) essentially towards its center and that said slot is closer to the outer circumference of the rotor (1, Fig. 6) than the central axle (4, Fig. 6) of said rotor. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a rotor structure (1, Fig. 6) with slots (3, Fig. 6) in the rotor poles (2, Fig. 6) on the route of the magnetic flux (par. 53, lines 1-5) so that at least one slot (3, Fig. 6) extends from both edges of the pole (2, Fig. 6) essentially towards its center and that said slot is closer to the outer circumference of the rotor (1, Fig. 6) than the central axle (4, Fig. 6) of said rotor as taught by Wakui et al. '309, since Wakui et al. '309 states that such a modification would provide easy production, low production cost, and a greater surface area of the permanent magnet (par. 52, lines 4-7).

In re claim 2, Wakui et al. '309 discloses the slots (3, Fig. 6) located at a distance from the outer circumference of the rotor (1, Fig. 6).

In re claim 3, Wakui et al. '309 discloses the permanent magnets (2, Fig. 6) arranged in a V shape so that said magnets extend to the vicinity of the outer circumference of the rotor (1, Fig. 6) and that said magnets forming a single pole are closer to each other at the end towards the axle (4, Fig. 6) than at the end towards the circumference.

In re claim 4, Wakui et al. '309 discloses the slots (3, Fig. 6) extending from the edge of the pole (2, Fig. 6) towards the center of said pole essentially parallel with the outer circumference of the rotor (1, Fig. 6).

In re claim 5, Wakui et al. '309 discloses the width of the slot (3, Fig. 6) decreases towards the center of the pole (2, Fig. 6).

In re claim 6, Wakui et al. '309 discloses the end of the slot (3, Fig. 6) located towards the center of said pole is curved towards the axle (4, Fig. 6).

In re claim 7, Asano et al. '559 discloses the slot (3, Fig. 6) extends from the edge of the pole (2, Fig. 6) essentially towards the center of said pole on the outer circumference of the rotor (1, Fig. 6).

Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. '374 in view of Wakui et al. '309 as applied to claim 1 above, and further in view of Vanderschaeghe (US Patent No. 4,658,165).

Asano et al. '374 in view of Wakui et al. '309 does not disclose:

- Several slots extending from both edges of the pole towards the center of the pole towards the center of the pole, so that the slots on the same edge of the pole are located at an interval from each other in the radial direction of the rotor and that at least one slot on both edges of the pole is essentially parallel with the outer circumference of the rotor.

Vanderschaeghe '165 discloses:

- Several slots (15, Fig. 2) extending from both edges of the pole (10, Fig. 2) towards the center of the pole (10, Fig. 2) towards the center of the pole (10, Fig. 2), so that the slots (15, Fig. 2) on the same edge of the pole (10, Fig. 2) are located at an interval (col. 4, lines 22-25) from each other in the radial direction of the rotor (2, Fig. 2) and that at least one slot (15) on both edges of said pole is essentially parallel with the outer circumference of said rotor.

The advantage of Vanderschaeghe '165 is to provide a great concentration of inductive flux to create an extremely high linear current density in the stator (col. 4, lines 30-33).

Vanderschaeghe '165 teaches that it is known to provide several slots (15, Fig. 2) extending from both edges of the pole (10, Fig. 2) towards the center of the pole (10, Fig. 2) towards the center of the pole (10, Fig. 2), so that the slots (15, Fig. 2) on the same edge of the pole (10, Fig. 2) are located at an interval (col. 4, lines 22-25) from each other in the radial direction of the rotor (2, Fig. 2) and that at least one slot (15) on both edges of said pole is essentially parallel with the outer circumference of said rotor. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide several slots (15, Fig. 2) extending from both edges of the pole (10, Fig. 2) towards the center of the pole (10, Fig. 2) towards the center of the pole (10, Fig. 2), so that the slots (15, Fig. 2) on the same edge of the pole (10, Fig. 2) are located at an interval (col. 4, lines 22-25) from each other in the radial direction of the rotor (2, Fig. 2) and that at least one slot (15) on both edges of said pole is essentially parallel with the outer circumference of said rotor as taught by

Vanderschaeghe '165, since Vanderschaeghe '165 states that such a modification would provide a great concentration of inductive flux to create an extremely high linear current density in the stator (col. 4, lines 30-33).

In re claim 9, Vanderschaeghe '165 discloses the slots (15, Fig. 2) closer to the outer circumference of the rotor (2, Fig. 2) are longer than the slots (15, Fig. 2) farther away from the outer circumference of said rotor.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US Patent No. 6,396,374 B1) in view of Narita et al. (US Patent No. 5,962,944) and Asano et al. (US Patent No. 6,008,559).

Asano et al. '374 discloses:

- A rotor (10, Fig. 1) for a permanent-magnet electrical machine (col. 1, line 12), comprising an axle (14, Fig. 1) mounted to the machine body with bearings (col. 3, lines 44-48), a rotor pack (11, Fig. 1) made of iron (col. 4, lines 52-53) and arranged around said axle, as well as permanent magnets (42a and 42b, Fig. 8) adapted to the rotor pack, used for forming magnet poles (col. 5, line 1).
- The magnetic flux density is at its maximum at the center of the pole and decreased towards the edges of the pole (col. 6, lines 50-55).

Asano et al. '374 does not disclose:

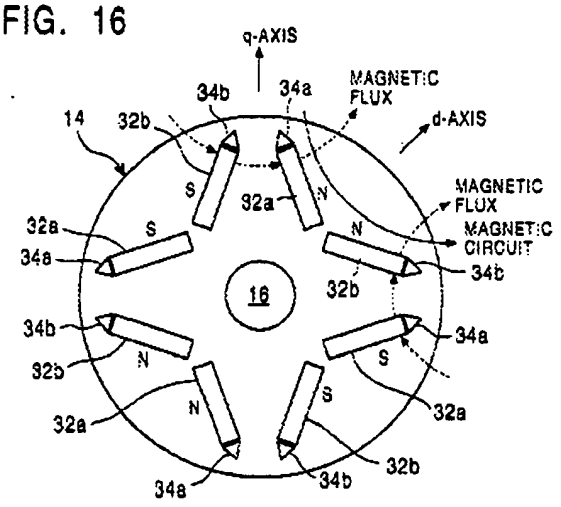
- Slots in the rotor poles on the route of the magnetic flux so that at least one slot extends from both edges of the pole essentially towards its center and that

the slot is closer to the outer circumference of the rotor than the central axle of the rotor.

Narita et al. '944 discloses:

- Slots (34a and 34b, Fig. 16) in the rotor poles (32a and 32b, Fig. 16) on the route of the magnetic flux (Magnetic Flux, Fig. 16) and are closer to the outer circumference of the rotor (14, Fig. 16) than the central axle (16, Fig. 16) of said rotor.

FIG. 16



Asano et al. '559 discloses:

- Slots (27, Fig. 1) in the rotor poles (23, Fig. 1) on the route of the magnetic flux (col. 4, lines 65-67) so that at least one slot (27, Fig. 1) extends from both edges of the pole (23, Fig. 1) essentially towards its center and that said slot is closer to the outer circumference of said rotor than the central axle.

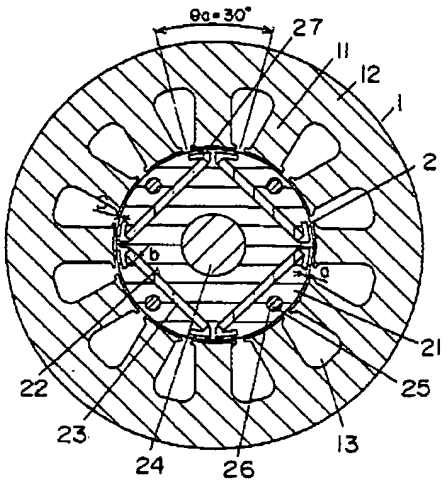


FIG. 1

The advantage of the rotor structure of Narita et al. '944 is provide proper performance and size consistent with the intended use at a reasonable cost (col. 2, lines 33-36).

The advantage of the slots of Asano et al. '559 is to prevent the magnetic flux from being short-circuited (col. 4, lines 8-10).

Narita et al. '944 teaches that it is known to provide a rotor structure with slots (34a and 34b, Fig. 16) in the rotor poles (32a and 32b, Fig. 16) on the route of the magnetic flux (Magnetic Flux, Fig. 16) and are closer to the outer circumference of the rotor (14, Fig. 16) than the central axle (16, Fig. 16) of said rotor. Asano et al. '559 teaches that it is known to provide Slots (27, Fig. 1) in the rotor poles (23, Fig. 1) on the route of the magnetic flux (col. 4, lines 65-67) so that at least one slot (27, Fig. 1) extends from both edges of the pole (23, Fig. 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a rotor structure with slots (34a and 34b, Fig. 16) in the rotor poles (32a and 32b, Fig. 16) on

the route of the magnetic flux (Magnetic Flux, Fig. 16) and are closer to the outer circumference of the rotor (14, Fig. 16) than the central axle (16, Fig. 16) of said rotor with the slots of Asano et al. '559 which describes Slots (27, Fig. 1) in the rotor poles (23, Fig. 1) on the route of the magnetic flux (col. 4, lines 65-67) so that at least one slot (27, Fig. 1) extends from both edges of the pole (23, Fig. 1) as taught by Narita et al. '944 modified by Asano et al. '559, since Narita et al. '944 states that such a modification would provide proper performance and size consistent with the intended use at a reasonable cost (col. 2, lines 33-36) and since Asano et al. '559 states that such a modification to Narita et al. '944 would prevent the magnetic flux from being short-circuited (col. 4, lines 8-10).

In re claim 2, Asano et al. '559 discloses the slots (27, Fig. 1) located at a distance from the outer circumference of the rotor (2, Fig. 1).

In re claim 3, Narita et al. '944 discloses the permanent magnets (32a and 32b, Fig. 16) arranged in a V shape so that said magnets extend to the vicinity of the outer circumference of the rotor (14, Fig. 16) and that said magnets forming a single pole are closer to each other at the end towards the axle (16, Fig. 16) than at the end towards the circumference.

In re claim 4, Asano et al. '559 discloses the slots (27, Fig. 1) extending from the edge of the pole (23, Fig. 1) towards the center of said pole essentially parallel with the outer circumference of the rotor (2, Fig. 1).

In re claim 5, Asano et al. '559 discloses the width of the slot (27, Fig. 1) decreases towards the center of the pole (23, Fig. 1).

In re claim 6, Asano et al. '559 discloses the end of the slot (27, Fig. 1) located towards the center of said pole is curved towards the axle (24, Fig. 1).

In re claim 7, Asano et al. '559 discloses the slot (27, Fig. 1) extends from the edge of the pole (23, Fig. 1) essentially towards the center of said pole on the outer circumference of the rotor (2, Fig. 1).

Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. '374 in view of Narita et al. '944 and Asano et al. '559 as applied to claim 1 above, and further in view of Vanderschaeghe (US Patent No. 4,658,165). Asano et al. '374 in view of Narita et al. '944 and Asano et al. '559 has been discussed above, but Asano et al. '374 in view of Narita et al. '944 and Asano et al. '559 does not disclose:

- Several slots extending from both edges of the pole towards the center of the pole towards the center of the pole, so that the slots on the same edge of the pole are located at an interval from each other in the radial direction of the rotor and that at least one slot on both edges of the pole is essentially parallel with the outer circumference of the rotor.

Vanderschaeghe '165 discloses:

- Several slots (15, Fig. 2) extending from both edges of the pole (10, Fig. 2) towards the center of the pole (10, Fig. 2) towards the center of the pole (10, Fig. 2), so that the slots (15, Fig. 2) on the same edge of the pole (10, Fig. 2) are located at an interval (col. 4, lines 22-25) from each other in the radial direction of

the rotor (2, Fig. 2) and that at least one slot (15) on both edges of said pole is essentially parallel with the outer circumference of said rotor.

The advantage of Vanderschaeghe '165 is to provide a great concentration of inductive flux to create an extremely high linear current density in the stator (col. 4, lines 30-33).

Vanderschaeghe '165 teaches that it is known to provide several slots (15, Fig. 2) extending from both edges of the pole (10, Fig. 2) towards the center of the pole (10, Fig. 2) towards the center of the pole (10, Fig. 2), so that the slots (15, Fig. 2) on the same edge of the pole (10, Fig. 2) are located at an interval (col. 4, lines 22-25) from each other in the radial direction of the rotor (2, Fig. 2) and that at least one slot (15) on both edges of said pole is essentially parallel with the outer circumference of said rotor. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide several slots (15, Fig. 2) extending from both edges of the pole (10, Fig. 2) towards the center of the pole (10, Fig. 2) towards the center of the pole (10, Fig. 2), so that the slots (15, Fig. 2) on the same edge of the pole (10, Fig. 2) are located at an interval (col. 4, lines 22-25) from each other in the radial direction of the rotor (2, Fig. 2) and that at least one slot (15) on both edges of said pole is essentially parallel with the outer circumference of said rotor as taught by Vanderschaeghe '165, since Vanderschaeghe '165 states that such a modification would provide a great concentration of inductive flux to create an extremely high linear current density in the stator (col. 4, lines 30-33).

In re claim 9, Vanderschaeghe '165 discloses the slots (15, Fig. 2) closer to the outer circumference of the rotor (2, Fig. 2) are longer than the slots (15, Fig. 2) farther away from the outer circumference of said rotor.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. '374 in view of Narita et al. '944 and Asano et al. '559 as applied to claim 1 above, and further in view of Inayama et al. (US Publication No. 2002/0140308).

Asano et al. '374 in view of Narita et al. '944 and Asano et al. '559 does not disclose:

- Permanent magnets located on the surface of the outer circumference of the rotor and that the slots are arranged inside the rotor at the positions of the permanent magnets in terms of the radial direction of the rotor.

Inayama et al. '308 discloses:

- Permanent magnets (11, Fig. 10) located on the surface of the outer circumference of the rotor (10, Fig. 10) and that the slots (13, Fig. 10) are arranged inside the rotor (10, Fig. 10) at the positions of said permanent magnets in terms of the radial direction of said rotor.

The advantage of Inayama et al. '308 is to fix rotor blocks with the coupling members in which keep the rotor block and coupling members relatively displaced by the same angle (par. 94, lines 6-10).

Inayama et al. '308 teaches that it is known to provide permanent magnets (11, Fig. 10) located on the surface of the outer circumference of the rotor (10, Fig. 10) and that the slots (13, Fig. 10) are arranged inside the rotor (10, Fig. 10) at the positions of

said permanent magnets in terms of the radial direction of said rotor. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide permanent magnets (11, Fig. 10) located on the surface of the outer circumference of the rotor (10, Fig. 10) and that the slots (13, Fig. 10) are arranged inside the rotor (10, Fig. 10) at the positions of said permanent magnets in terms of the radial direction of said rotor as taught by Inayama et al. '308, since Inayama et al. '308 states that such a modification would fix rotor blocks with the coupling members in which keep the rotor block and coupling members relatively displaced by the same angle (par. 94, lines 6-10).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. '374 in view of Sakamoto (US Patent No. 5,386,161) and Asano et al. '559.

Asano et al. '374 discloses:

- A method of manufacturing a permanent-magnet electric machine (col. 4, lines 38-40) comprising an axle (14, Fig. 1) mounted to the machine body with bearings (col. 3, lines 44-48), with said method comprising the arrangement of tor poles (col. 4, lines 39-41) around said axle, said poles made of made of magnetically conductive iron (col. 4, lines 52-53) and permanent magnets (42a and 42b, Fig. 8; col. 6, lines 43-47) adapted to it.

Asano et al. '374 does not disclose:

- Axial slots in the rotor essentially extending from the edge of the pole towards its center.

Sakamoto '161 discloses:

- A sinusoidal form in the air gap flux (col. 6, lines 55-56).

Asano et al. '559 discloses:

- Axial slots (27, Fig. 1) in the rotor (2, Fig. 1) essentially extending from the edge of the pole (23, Fig. 1) towards its center.

The advantage of Sakamoto '161 is to reduce vibration and noise in the motor (col. 6, lines 55-57).

The advantage of Asano et al. '559 is to prevent the magnetic flux from being short-circuited (col. 4, lines 8-10).

Sakamoto '161 teaches that it is known to provide a sinusoidal form in the air gap flux (col. 6, lines 55-56). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a sinusoidal form in the air gap flux (col. 6, lines 55-56) as taught by Sakamoto '161, since Sakamoto '161 states that such a modification would reduce vibration and noise in the motor (col. 6, lines 55-57).

Asano et al. '559 teaches that it is known to provide axial slots (27, Fig. 1) in the rotor (2, Fig. 1) essentially extending from the edge of the pole (23, Fig. 1) towards its center. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide axial slots (27, Fig. 1) in the rotor (2, Fig. 1) essentially extending from the edge of the pole (23, Fig. 1) towards its center as taught by Asano et al. '559, since Asano et al. '559 states that such a modification would prevent the magnetic flux from being short-circuited (col. 4, lines 8-10).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. '374 in view of Sakamoto '161 and Asano et al. '559 as applied to claim 11 above, and further in view of Kanno (US Patent No. 5,255,425). Asano et al. '374 in view of Sakamoto '161 and Asano et al. '559 has been discussed above, but Asano et al. '374 in view of Sakamoto '161 and Asano et al. '559 dose not disclose:

- The slots made by die-cutting.

Kanno '425 discloses:

- The slots made by die-cutting. **Note "made by die-cutting" is a method limitation and is given no patentable weight to the apparatus claim.**

The advantage of Kanno '425 is to form a laminated core with a circular through hole (col. 1, lines 19-22).

Kanno '425 teaches that it is known to provide slots made by die-cutting. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide slots made by die-cutting as taught by Kanno '425, since Kanno '425 states that such a modification would form a laminated core with a circular through hole (col. 1, lines 19-22).

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. '374 in view of Sakamoto '161 and Asano et al. '559 as applied to claim 1 above, and further in view of Booth et al. (US Patent No. 4,685,202). Asano et al. '374 in view of Sakamoto '161 and Asano et al. '559 has been discussed above, but Asano et al. '374 in view of Sakamoto '161 and Asano et al. '559 does not disclose:

- Slots made by using a laser.

Booth et al. '202 discloses:

- Slots (20, Fig. 3) made by using a laser. **Note "made by using a laser" is a method limitation and is given no patentable weight to the apparatus claim.**

The advantage of Booth et al. '202 is to provide a quick process and prevent angularly spaced low reluctance areas us using a laser (col. 1, lines 60-65).

Booth et al. '202 teaches that it is known to provide slots (20, Fig. 3) made by using a laser. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide slots (20, Fig. 3) made by using a laser as taught by Booth et al. '202, since Booth et al. '202 states that such a modification would provide a quick process and prevent angularly spaced low reluctance areas us using a laser (col. 1, lines 60-65).

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. '374 in view of Sakamoto '161 and Asano et al. '559 as applied to claim 11 above, and further in view of Kurosawa et al. (US Patent No. 5,763,967). Asano et al. '374 in view of Sakamoto '161 and Asano et al. '559 has been discussed above, but Asano et al. '374 in view of Sakamoto '161 and Asano et al. '559 dose not disclose:

- The slots are made by drilling axial holes in the rotor.

Kurosawa et al. '967 discloses:

- The slots (24, Fig. 1) are made by drilling axial holes (col. 5, lines 3-5) in the rotor (8, Fig. 1).

The advantage of Kurosawa et al. '967 is to remedy the imbalance of the rotor (col. 5, lines 3-5).

Kurosawa et al. '967 teaches that it is known to provide slots (24, Fig. 1) made by drilling axial holes (col. 5, lines 3-5) in the rotor (8, Fig. 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide slots (24, Fig. 1) made by drilling axial holes (col. 5, lines 3-5) in the rotor (8, Fig. 1) as taught by Kurosawa et al. '967, since Kurosawa et al. '967 that such a modification would remedy the imbalance of the rotor (col. 5, lines 3-5).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sakai et al. (US Patent No. 6,552,462 B2) discloses v-shaped permanent magnets in a rotor with a slit from the edge of the pole to the center of the pole with the slit narrowing towards the center of the pole and axle. Tagome et al. (US Publication No. 2002/0175585) discloses a rotor with permanent magnets and slits consisting of a pole. Mobius et al. (US Patent No. 6,437,473 B1) discloses permanent magnets in the rotor with slits towards the center of the pole. Coles (US Patent No. 6,351,050 B1) discloses permanent magnets on the outer surface of the rotor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dustin Jacobs whose telephone number is 571-270-1429. The examiner can normally be reached on M-Th, 7:30am-5:00pm est.; alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DJ